FORM F Version: November 2013

Individual Permit Application To use a Powered Mechanical Device

for **Aquatic Nuisance Control** under
10 VSA Chapter 50, §1455(f)

For DEC Use Only
Permit Number:

VERMONT
ENVIRONMENTAL CONSERVATION

Submission of this complete application constitutes notice that the entity in Section A intends to use a Power Mechanical Device within waters of the State of Vermont to control aquatic nuisance plants, insects, or other aquatic life, including lamprey. Submission of this application also constitutes notice that the party identified in Sections A and B have demonstrated that (1) there is acceptable risk to the non-target environment; (2) there is negligible risk to the public health; and (3) there is either benefit to or no undue adverse effect upon the public good. In order to be granted permit coverage, all information required on this form must be provided. Submit the requisite application fee of **$35 for a private pond or $175 for all other waterbodies** made payable to the State of Vermont.

RECEIVED JAN 16 2015 WSMD

A. Applicant / Decision-maker

1. Organization Name: **Lake Bomoseen Association**

2a. Mailing Address (Street/PO Box): **PO Box 655**

b. City/Town: **Castleton**	c. State: **Vermont**	d. Zip: **05735**

3. Contact Information a. Name: **Terry Moran, Chairman Water Quality Committee**	b. Phone: **802-773-8730**	c. Email: **tjmoran5@comcast.net**

B. Contractor / Operator Information (Check box if same as above: X☐)

1a. Company Name:

2a. Mailing Address (Street/PO Box):

b. City/Town:	c. State:	d. Zip:

3. Contact Information a. Name:	b. Phone:	c. Email:

C. Waterbody / Project Information

1a. Name of waterbody: **Lake Bomoseen**

1b. Waterbody ID: VT02-03L05
➲ Use DEC's Waterbody Identification ArcGIS webpage *(click here)*:

2. Town(s)/city where waterbody is located: **Towns of Castleton and Hubbardton, VT**

3a. Total acreage: **2360**	3b. Is waterbody totally contained on Applicant's property? ☐ Yes X☐ No

3c. County: **Rutland**	3d. Latitude: **43° 38' 36N"** Longitude: **73° 12' 53W"** (center of waterbody)

4a. Average depth of activity: **3 feet average harvest depth**	4b. Maximum depth of activity: **4 feet maximum harvest depth**

5a. Are there wetlands associated with the waterbody? X ☐ Yes ☐ No

5b. If yes, what type: ☐ Class I X☐ Class II ☐ Class III If necessary, contact DEC Wetland Program at: (802) 828-1535 **Three small wetland areas abut Lake Bomoseen below the Castleton-Hubbardton Town line.**

6. List the uses of the waterbody by shoreline property owners and public (if applicable) – check all that apply:
X☐ Water supply (**Only a few homes**) ☐ Watering Livestock ☐ Snowmaking ☐ Irrigation X☐ Boating
X☐ Swimming X☐ Fishing X☐ Other: **(Winter sports)**

D. Control Activity Information

1a. Annual activity Start Date (month/year):
June 15, 2015-2025

1b. Annual activity End Date (month/year):
October 15, 2015-2025

2. Aquatic Plants to be controlled (list species):
Eurasian Watermilfoil
Algae (if and when it occurs in waters greater than 1.5' deep)

3. Type of Powered Mechanical Device to be used:
ECO-Harvester Model 2014

Provide make/model numbers if commercially available mechanical device.

4. Enclose labeled photo(s) or schematic(s) of equipment to be used. **See Attachment 1, (without optional weed cutter bar)**

5. Include a map indicating the proposed activity locations:
X☐ Entire waterbody **below the Castleton-Hubbardton Town Line mostly along shorelines, see Map Attachment 2**
☐ Spot treatment (Provide location & surface area of each area.)

6. Briefly describe in narrative form the proposed project, include the following items:
a) List the reason(s) /historic need to control the aquatic nuisance species:

See Attachment 3

b) Identify all rare, threatened or endangered plant or animal species (if known):
➲ Use ANR's Natural Resources Atlas (click here)

Unknown

E. Certification

As APPLICANT / DECISION-MAKER, I hereby certify that the statements presented on this application are true and accurate; guarantee to hold the State of Vermont harmless from all suits, claims or causes of action that arise from the permitted activity; and recognize that by signing this application, I agree to complete all aspects of the project as authorized.

Applicant / Decision-maker

Signature: Terence J Moran Date: 1/12/15

As CONTRACTOR / OPERATOR, I hereby certify that the statements presented on this application are true and accurate; guarantee to hold the State of Vermont harmless from all suits, claims or causes of action that arise from the permitted activity; and recognize that by signing this application, I agree to complete all aspects of the project as authorized.

Contractor / Operator

Signature: Terence J Moran for LBA Date: 1/12/15

Submit this form and the $35 or $175 fee to:

Vermont Department of Environmental Conservation
Watershed Management Division
Aquatic Nuisance Control Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

*Direct all correspondence to: **Matthew Probasco, Aquatic Nuisance Control Permit Coordinator: matthew.probasco@state.vt.us or (802) 490-6133***

ATTACHMENTS

1. ECO-HARVESTER Brochure
2. Map of Lake Bomoseen showing proposed milfoil harvest areas and free floating milfoil skimming areas
3. Lake Bomoseen Proposed Milfoil Control Project Description

Please note: Bill Wood is also a person to contact for information pertaining to this.

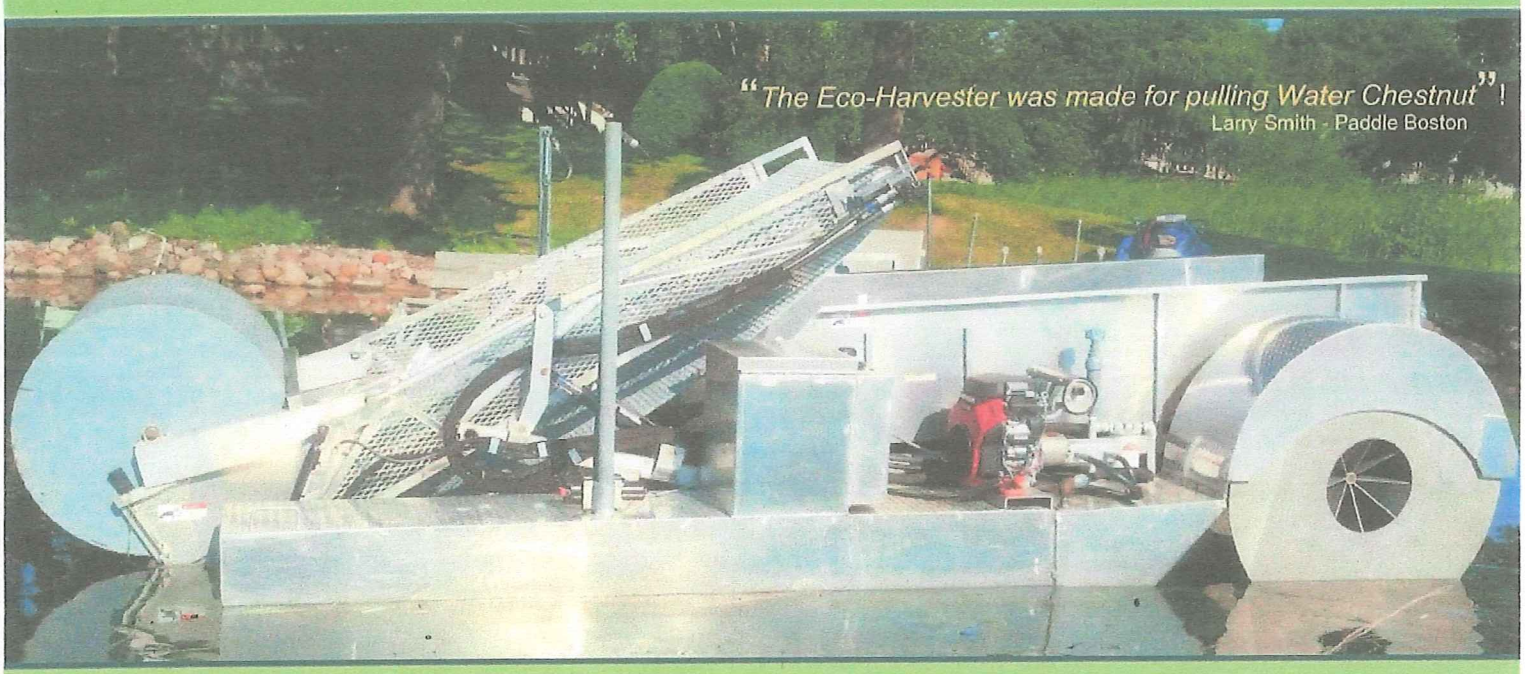
His phone is 802-273-3124

and email is @ - billwood42@Comcast.net

ATTACHMENT 1

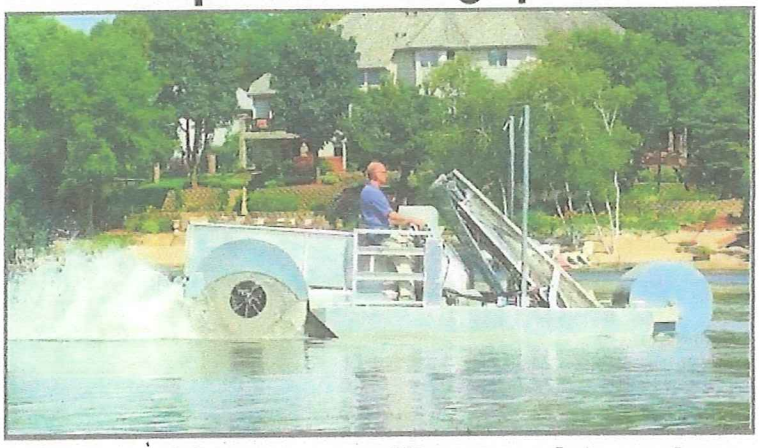
ECO HARVESTER

All-In-One Aquatic Weed Puller, Cutter & Skimmer



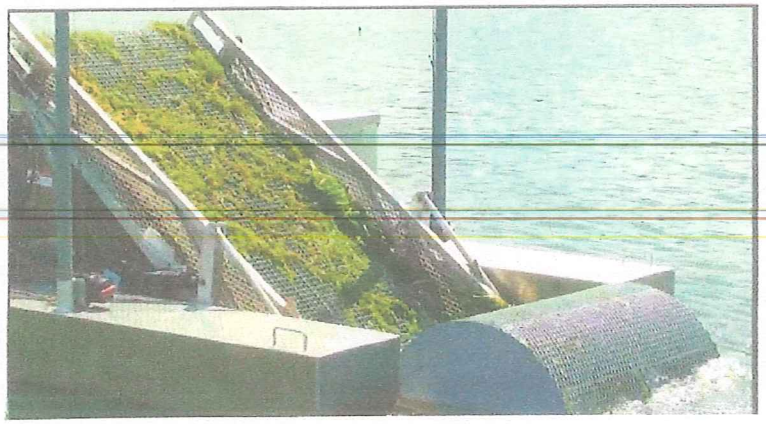
Why cut aquatic plants when you can pull them by the roots?

5mph harvesting speed



Operates in less than 1' of water

95% effective pulling & skimming



Generous 4 cubic yard capacity

Features & Benefits:

Feature	Benefit
Affordable	One-third the price of traditional harvesters
Eco-friendly	No chemicals or dredging
Easy to operate	One-person operation from start to finish
Versatile	Pulls, cuts, & skims weeds in shallow water
Effective lake management	Uproots aquatic weeds including milfoil
Quality engineered	Well built & lifetime warranty on hull
Standard components	Universal repair & replacement parts
Dynamic flow intake	95% effective weed pulling!

Applications

The Eco-Harvester is more versatile and effective than traditional aquatic weed harvesters because it can pull, cut, or skim both aquatic weeds and floating debris or algae in shallow water, around docks (piers & marina slips) channels, canals, and retention ponds.

Most important is that it is affordable for lake associations, conservation management companies, municipalities, and lakeshore maintenance contractors because it is 1/3 the cost of any other comparable weed harvester / cutter.

If you are interested we would like to invite you for a product demonstration at either our Minneapolis or Milwaukee location! Please let us know if you need product specifications, trailer options, productivity rates, or a business pro forma explaining how this one-of-a-kind machine can make you money!

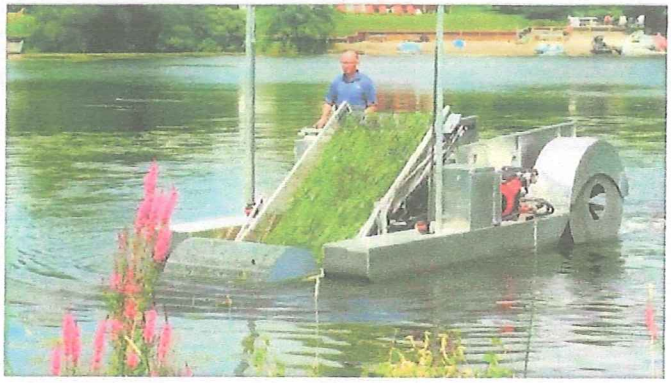
Sincerely,
The Weeder's Digest
www.WeedersDigest.com
www.EcoHarvester.net
877-224-4899

Weeders Digest .com

Eco Harvester Specifications

Performance		
	Harvester Weight	3,500 lbs
	Draft Empty	10"
	Intake Conveyor Width	4'
Dimensions		
	Overall	8' 6" wide x 19' long
	Barge Platform	8' wide x 15' long
	Weed Bunk Size	5' wide x 8' long x 2.5' deep
	Weed Bunk Volume	4 cubic yards
Engine		
	Manufacturer	Honda
	Model	GX690
	Net Horsepower	25 HP
	Net Torque	35.6 lbs ft
	Fuel	Gasoline
Hydraulics		
	Gear Pumps	2
	Operating Pressure	1200 PSI
Propulsion		
	Type	Dual Independent Paddle Wheels
	Power Transfer	Hydraulic
Capacities		
	Fuel	10.3 gallons
	Oil	2.1 qt
Speed		
	10 mph (Top - end speed)	
	2-5 mph (Harvesting / skimming speed)	

Performance Capabilities:



Pulling / Cutting:

-Cuts and pulls aquatic plants from their roots
-Eco-Harvester can reach down to 4' to pull aquatic plants
-Interchangeable 4' wide cutter bar available

Skimming:

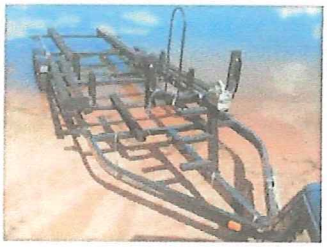
-Skims floating weed mats with ease
-Ideal for skimming Algae blooms and Water Chestnut
-Skim weed fragments left behind by traditional harvesters

Maneuverability:

-Pull / skim next to docks, piers, boat lifts, and shorelines
-10" draft lets you operate in less then 1ft of water
-Responsive and easy to use joystick control

Productivity:

-3 in 1 Aquatic plant pulling / cutting / skimming
-Harvesting speeds between 3-5 mph
-Twice as fast as any other harvester
-Up to 10 mph top end speed
-Efficient transport and operation



Unloading / Trailering:

-Unloading and trailering is easy using our customized Karavan Trailer
-One person can unload, operate, and trailer the Eco-Harvester

Capacity:

-Patented Reverse Conveyor Technology makes for quick and efficient unloading
-Generous bunk capacity holds 4 cubic yards of wet aquatic weeds
-9' conveyor reach so you can offload to the shoreline, dock, or transport barge

Eco Harvester

877-224-4899

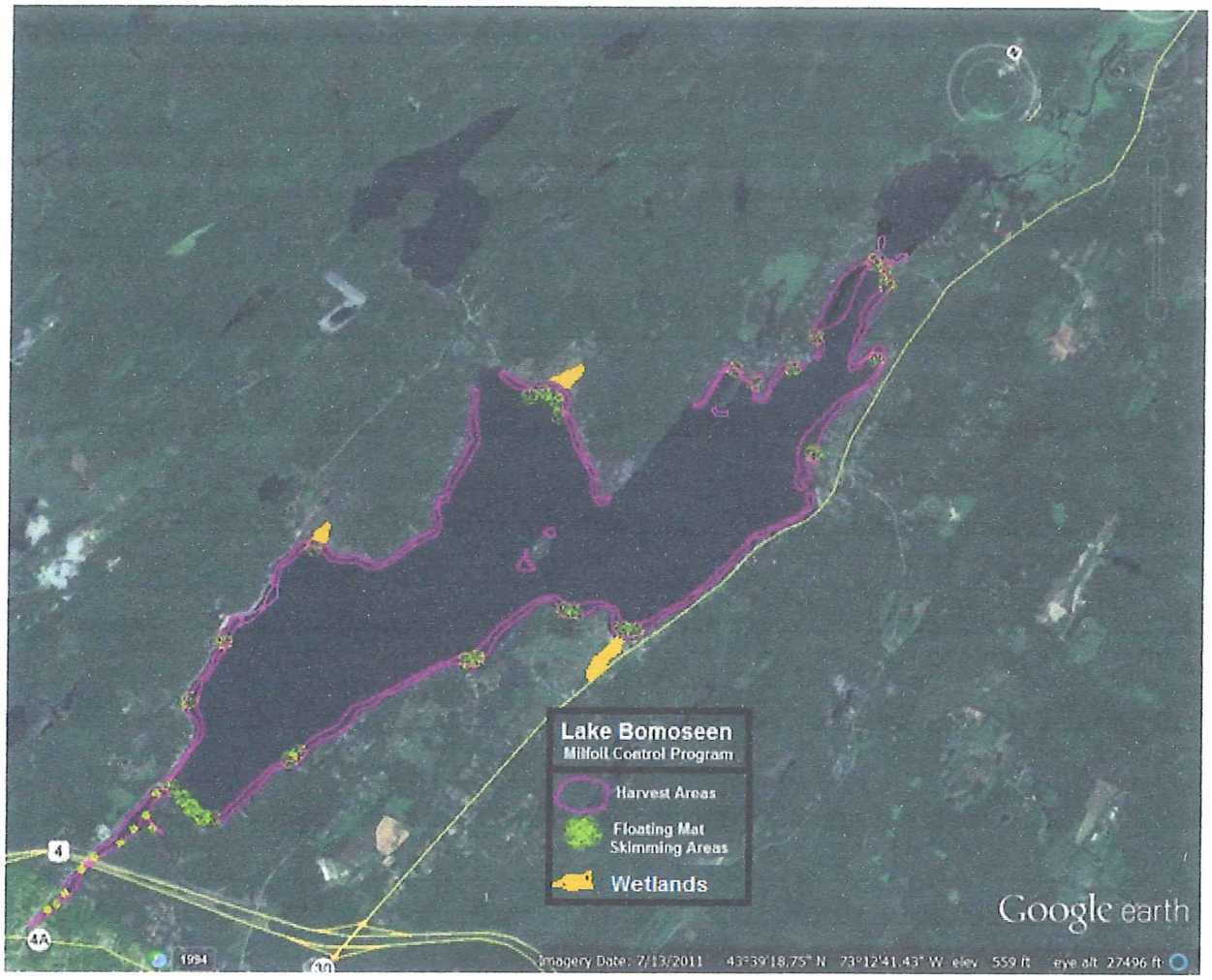
- Home
- Photos
- Video
- Brochure
- Special Offers
- Request Information
- Contact
- Sitemap

The Eco Harvester – Aquatic Plant Puller, Cutter & Skimmer

The Eco-Harvester is an environmentally friendly aquatic plant harvesting machine and the only harvester of its kind that has the ability to pull the plants rather than cutting them like ALL other traditional harvesters! It is effective for pulling up milfoil, hydrilla, celery grass, and most other aquatic plants prevalent in ponds, lakes, rivers, channels, canals, and beachfront property.

- Excellent for floating mats of weeds and algae
- Designed to pull the plants however there is an optional cutter bar
- Environmentally Friendly
- Works in Almost Any Water Source
- Capable of targeting weeds in as little as 10″ of water
- Perfect for around docks, piers and boat lifts
- Compact- similar in size to a pontoon boat (8.6′ x 19′)
- Easily transportable on most any sizeable flat trailer
- Trailer customized for Eco Harvester available
- Self-unloading system can discharge weeds into a truck, trailer or onto shore
- Made in the USA

Attachment 2 – Map of Lake Bomoseen Milfoil Control Areas



Attachment 3 - Lake Bomoseen Proposed Milfoil Control Project Description

6. Briefly describe in narrative form the proposed project, include the following items:
   a) List the reason(s) /historic need to control the aquatic nuisance species:

Eurasian Watermilfoil (EWM) has "...had significant negative economic and ecological impacts..." in "Many of the state's waters, especially lakes ..." where infestation has occurred [1]. EWM infestation is unattractive and a nuisance for boating, swimming and fishing activities. EWM infestation is associated with the lowering of lakefront property values. EWM is also associated with negative impacts on native aquatic plants, waterfowl, fish, some mammals and water quality. Dense EWM canopies reduce space for large predator fish, lower the abundance and diversity of food for fish, lower dissolved oxygen levels, raise water temperatures and release large amounts of harmful nitrogen and phosphorus into the lake water [2, 3, 4]. In the mid 1980's mechanical harvesting in Lake Bomoseen was undertaken but after a few years was abandoned as it was thought it was promoting the spread of EWM. This was probably the case since the sickle bar equipped harvesters left many fragments behind and there was insufficient effort to collect them before they sunk to the bottom and formed new plants. Mechanical harvesting continued on the north end of the lake in Hubbardton until 2012. The status of future Hubbardton harvesting operations are not known at this time but in order to avoid an overlap with these existing operations the LBA Harvesting Program is only for the area of the lake south of Castleton-Hubbardton line.

The proposed Harvesting Program for which Lake Bomoseen Association is seeking a permit is intended to control EWM growth and spread by reducing the volume of EWM in Lake Bomoseen in the upper 4 feet of the water column from the shoreline out to a depth of roughly 20 feet where the EWM can grow and reach the water surface. Harvesting in these areas will have an immediate positive impact on boating, swimming and fishing activities in the lake and will improve the appearance of the lake where dense EWM canopies form on the water surface. Multiple harvestings at 3 to 4 week intervals in some of the most infested areas will be required to prevent EWM regrowth from reaching the water surface. The proposed harvesting program will remove large quantities of EWM from the lake waters that would otherwise sink to the bottom in the fall where it would add to the vegetation debris on the lake bottom that upon decomposition adds undesirable nitrogen and phosphorus to the lake waters. The harvested EWM will be removed from the lake and be transported to composting and/or drying areas. The composted or dried EWM will them become available for to amend the soil of local farms and gardens. Multiple harvestings throughout the growing season are anticipated beginning about June 15th and continuing through October 15th.

The proposed Harvesting Program will be complemented by a separate intensive Skimming Program to remove floating EWM fragments created by the harvesting process as well as those produced by other causes including boating activities, wave action and self-fragmentation. Particular attention will be placed on skimming freely floating EWM fragments where they form into wind driven mats along certain areas of the lake shoreline. The removal of freely floating EWM fragments from the lake waters will help significantly to prevent the spread of EWM as the fragments sink and take root to form new plants. The wind driven EWM fragment mats also contain some trash and other debris. The skimming operation will also remove much

of this trash and other debris from the lake waters.

The ECO-Harvester selected by LBA for the harvesting program is different from all other mechanical harvesting equipment. Instead of cutting the EWM with bottom and side sickle bars, the ECO-Harvester pulls the EWM between two opposed rollers. This pulling action will either pull the milfoil plants out by their roots or will break off the EWM stems somewhere below the depth of the roller. The very nature of pulling EWM, instead of cutting it with sickle bars, is highly beneficial since it will result in the production of fewer loose stem fragments during the harvesting process. The ECO-Harvester's shallow 10 inch draft will allow it to pull EWM very close to the lake shoreline. The ECO-Harvester's small size and maneuverability will allow it to pull EWM in and around dock spaces where traditional cutting harvesters dare not go. The ECO-Harvester is capable of collapsing its conveyor and lowering its spuds so it can transit under the Float Bridge.

The ECO-Harvester is also uniquely configured for skimming operations. By raising the rollers to near the water surface, freely floating EWM mats can be pulled into and through the rollers and up into the storage bin. The ECO-Harvester's very shallow 10" draft will allow it to skim these mats nearly to the water's edge.

The ECO-Harvester is a small unit compared to some other mechanical harvesters, including the one used in Hubbardton, with only a 4 foot wide harvesting width and a 4 cubic yard storage hopper. It is anticipated that a second ECO-Harvester will be required in the future to cover all of the EWM problem areas around Lake Bomoseen and that a transport barge will be also necessary to maximize harvester utilization.

The 2015 harvesting season will be a time to learn the capabilities of the ECO-Harvester and to train our volunteer staff of operators and shore personnel. In addition we will be creating a detailed survey of the lake including the areas and densities where EWM is growing as well as areas that will be excluded from harvesting such as beds of white water lily (nymphaea odorata), watershield (brasenia schreberi) and cow lily (nuphar variegate). Operators will be trained in the identification of these and other aquatic plants including invasive plants such as water chestnut (trapa natans) so they can be on the lookout for new infestations, document their locations and to take and bag samples for identity verification. The operators will also be trained to identify fish spawning nests so they may be avoided and to document other observations such as turtle sunning areas and blue heron feeding areas so they can be avoided during the EWM harvesting and skimming operations.

Note: The ECO-Harvester is able to perform two separate operations, harvesting and skimming. It is anticipated that the split in time between these two separate operations will be approximately 60% and 40% respectively. If the harvesting permit as issued specifies the number of days per month harvesting may take place then LBA requests that consideration be given to allow additional days per month in the 60/40 ratio where skimming only may take place. LBA is unsure if a single permit will cover both harvesting and skimming or if separate permits are required or if a permit is even needed for the skimming operation.

References:

1. Report on Aquatic Nuisance Control Activities in Vermont, Agency of Natural Resources, Waterbury, VT, Jan. 2010
2. Biology, Ecology and Management of Eurasian Watermilfoil, Montana State University, 2007
3. Environmental Fact Sheet Water Milfoil, New Hampshire Dept. of Environmental Services, 1997
4. Non-native Invasive Freshwater Plants – Myriophyllum spicatum (Eurasian Watermilfoil), Dept. of Ecology State of Washington